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BEFORE THE ARIZONA CORPORATION COMMISSION

MARC SPITZER
CHAIRMAN
WILLIAM A. MUNDELL
JEFF HATCH-MILLER
MIKE GLEASON
KRISTIN K. MAYES

Arizona Corporation Commission
DOCKETED

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In the matter of the Application of)
ARIZONA PUBLIC SERVICE COMPANY)
for a Hearing to Determine the Fair Value of the)
Utility Property of the Company for Ratemaking)
Purposes, to Fix Just and Reasonable Rate of)
Return Thereon, to Approve Rate Schedules)
Designed to Develop Such Return, and for)
Approval of Purchased Power Contract.)

Docket No. E-01345A-03-0437

**NOTICE OF FILING RESPONSE
TO REQUEST FOR INFORMATION**

Western Resource Advocates, through its undersigned counsel, hereby provides notice
that it has this day filed a Response to Chairman Spitzer's Information Request of December 1,
2004.

1 DATED this 10th day of December, 2004.

2 ARIZONA CENTER FOR LAW IN
3 THE PUBLIC INTEREST

4
5 By 

Timothy M. Hogan

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8 ORIGINAL and 13 COPIES of
9 the foregoing filed this 10th day
of December, 2004, with:

10 Docketing Supervisor
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12 Arizona Corporation Commission
1200 W. Washington
Phoenix, AZ 85007

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15 this 10th day of December, 2004, to:

16 All Parties of Record
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WESTERN RESOURCE ADVOCATES

**Response to Chairman Spitzer's
Information Request
of December 1, 2004**

Regarding

Tax Impacts on Renewable Energy and Conventional Energy

and

Interstate Renewable Energy Commerce

Proposed Settlement of

Docket No. E-01345A-03-0437

Arizona Public Service Company

Request for Rate Adjustment

December 10, 2004

The APS settlement agreement provides for the acquisition of significant quantities of energy from low cost, stably priced renewable energy resources as a hedge against high natural gas prices.¹ This paper provides Western Resource Advocates' (WRA's) responses to Chairman Spitzer's December 1, 2004 request for more information regarding renewable energy issues. In particular, Chairman Spitzer asked for responses to the following questions:

1. In light of current tax treatments of different types of energy, why should renewable energy be specifically sought in a special request for proposals as provided in paragraphs 69 through 72 of the proposed settlement agreement? Chairman Spitzer focused specifically on the American Jobs Creation Act of 2004.
2. How can markets in renewable energy be made more effective and beneficial for APS' ratepayers? Chairman Spitzer focused specifically on the role of the Western Renewable Energy Generation Information System.

Responses are set forth below.

Tax Treatments of Energy Resource Alternatives

The settlement agreement singles out renewable energy for special treatment. In particular, APS is to obtain energy from at least 100 MW of renewable resources in a special request for proposals to be issued in 2005 and to obtain additional energy from renewable resources which comprise at least 10 percent of the increase in APS' capacity needs over time. Chairman Spitzer requested comments on why renewable energy is to receive special treatment and to focus on tax treatments.

Background

Renewable energy resources were included in the settlement agreement, paragraphs 69 – 72 for several reasons:

- Some renewable energy resources, especially wind, geothermal, and biomass resources, have a relatively low cost and the costs are stable or fixed over time.²
- APS faces high gas prices that will ultimately be paid for by ratepayers.³
- Low cost renewable resources are an effective and economical hedge against moderate or high natural gas prices.⁴

¹ See Testimony of David Berry, filed September 27, 2004. This testimony describes the relevant provisions in the settlement agreement and explains why they are in the public interest.

² Direct testimony of David Berry, filed February 3, 2004, p. 6. See also, Western Resource Advocates, *A Balanced Energy Plan for the Interior West*, 2004.

³ Direct testimony of David Berry, filed February 3, 2004, pp. 2-4. Testimony of David Berry, filed September 27, 2004, pp. 2-3.

- Renewable resources have important environmental benefits. For example, wind, solar, and geothermal resources emit little or no carbon dioxide, sulfur dioxide, or nitrogen oxides into the atmosphere.⁵
- Other non-renewable resources, such as coal-fired generation, may exhibit low cost and stable prices. However, coal resources emit large quantities of carbon dioxide, sulfur dioxide, and nitrogen oxides⁶ that burden the welfare of Arizona, the nation, and the planet.⁷

Tax Issues

Special treatment of renewable resources in the settlement agreement may help offset differential tax treatment of gas-fired resources and renewable resources. WRA reviewed several recent examinations of tax treatment of conventional generation resources and renewable resources. However, we were unable to find similar analyses directly related to the American Jobs Creation Act of 2004 (H.R. 4520) discussed by Chairman Spitzer. The studies reviewed are summarized below.

- Alec Jenkins, Richard Chapman, and Hugh Reilly, "Tax Barriers to Four Renewable Electric Generation Technologies," no date. Available at www.energy.ca.gov/development/tax_neutrality_study/index.html. This study compared tax burdens for gas-fired generation and several hypothetical renewable energy projects located in California. Taxes analyzed were: a) local, state, and federal taxes applicable to all participants having direct transactions with the project, and b) just owner income, property, and sales taxes. Differences in tax impacts are partly attributable to the relatively high capital cost and low fuel cost of renewable resources relative to gas-fired generation and the relative absence of taxes on natural gas. The authors conclude that renewable energy projects carry a higher tax load relative to matching gas-fired generation and that the higher tax burden reduces the competitiveness of renewable energy generation.
- Alan Krupnik and Dallas Burtraw, "The Social Costs of Electricity: Do the Numbers Add Up?" Resources for the Future Discussion Paper 96-30, 1996. This paper describes a previous analysis of the different tax effects in Massachusetts of generation of electricity from natural gas, coal, and biomass facilities. The direct tax burden (tax payments in the construction and operation of the facility by an investor owned utility) and total tax burden (direct tax burden plus direct taxes

⁴ Direct testimony of David Berry, filed February 3, 2004, pp. 10-12. Also, David Berry, "Renewable Energy as a Natural Gas Price Hedge: The Case of Wind," *Energy Policy*, vol. 33 (April 2005): pp. 799-807.

⁵ Direct testimony of David Berry, filed February 3, 2004, pp. 7-9.

⁶ For emissions data, see Western Resource Advocates, *A Balanced Energy Plan for the Interior West*, 2004.

⁷ Thomas Sundqvist and Patrik Söderholm, "Valuing the Environmental Impacts of Electricity Generation: A Critical Survey," *Journal of Energy Literature*, vol. 8, no. 2, December 2002, pp. 3-41.

paid by firms in fuel extraction and transportation embedded in the cost of fuel plus personal income tax on labor and capital income) are much higher for the coal and biomass plants than for the natural gas plant. The tax impact differences are attributed in part to the relatively favorable treatment of fuel costs relative to capital and labor expenses.

- Congressional Research Service, The Library of Congress, *Energy Tax Policy*, CRS Issue Brief for Congress, Updated July 20, 2004 (Order Code IB10054). This study describes energy tax provisions and related revenue effects just prior to the adoption of the American Jobs Creation Act of 2004. Table 1, reproduced from the CRS study, indicates federal revenue losses (negative numbers) and gains (positive numbers) for each tax provision. Negative revenue effects reflect tax incentives for affected parties. Some tax provisions apply only to conventional generation or only to renewable energy while others may apply to both. The production tax credits for renewable electric generation are less than \$50 million and the investment tax credit for businesses engaged in solar and geothermal generation is less than \$50 million. However, the study does not provide sufficient data to conclude whether conventional generation of electricity is more favorably treated than electricity generated with renewable resources.

Conclusions Regarding Tax Issues

We have had time to conduct only a cursory review of the relative tax treatment of conventional generation and renewable energy. Renewable energy appears to be at a disadvantage relative to gas-fired generation because the tax burden tends to fall more heavily on capital intensive projects such as renewable energy generation. Therefore, such tax burden differentials may add further support for the preference for renewable energy in the settlement agreement and for production tax credits as means to "level the playing field" between gas-fired resources and renewable energy.

**Table 1. Energy Tax Provisions and Estimated Revenue Effects
(FY2003, \$ millions)**

Category	Provision	Major Limitations	Revenue Effect
CONVENTIONAL FOSSIL FUELS SUPPLY (bpd = barrels per day; < indicates less than)			
% depletion — oil/gas	15% of sales (higher for marginal wells)	for indep., up to 1,000 or equiv. bpd	- \$400
Expensing of IDC's — oil/gas & other fuels	100% deductible in first year	corporations expense only 70% of IDC's	- 600
Enhanced Oil Recovery Credit	15% of the costs	only for specific tertiary methods	- 200
% depletion — coal and other fuels	10% for coal	must be < 50% of taxable income	- < 50
coal excise tax (FY2001)	\$1.10/ton (0.55 for surface mines)	not to exceed 4.4% of sales price	550
ALTERNATIVE AND RENEWABLE FUELS			
§29, production tax credit	\$6.25/bar. (or \$1.00/mcf)	biogas, coal syngas, coalbed methane, etc.	- 1,000
53¢ exemption for gasoline	exemption from motor fuels taxes	for biomass ethanol only	- 1,100
§45 credit for renewable electricity	1.7¢/kWh.	wind, closed loop biomass, and poultry waste	- < 50
exclusion of interest on S&L bonds	interest income exempt from tax	for hydroelectric or biomass facilities used to produce electricity	-100
tax credits for alcohol fuels	53¢/gal+ 10¢/gal for small producer credit	only for biomass ethanol (e.g., corn)	- < 50
deduction for clean-fuel vehicles	\$2,000 for cars; \$50,000 for trucks; \$100,000 deduction for refueling facilities	CNG, LNG, LPG, hydrogen, neat alcohols, and electricity; phases out over 2002-2004	- < 50
tax credit for electric vehicles	10%, up to \$4,000	phase-out from 2002-2004	- < 50
credit for solar & geothermal tech.	10% investment tax credit for businesses	utilities excluded	- < 50
ENERGY CONSERVATION			
fuels taxes (FY2000)	18.4¢/gal of gas	4.4¢-24.4¢ for other fuels	29,600
mass trans. subsidies	exclusion of \$100/month	up to \$190/month for parking benefits	- 3,700
gas-guzzler tax (FY2001)	\$1,000-\$7,700/car	to limos and vehicles weighing 6,000 lbs. or less	78
exclusion for utility conservation subsidies	subsidies not taxable as income	any energy conservation measure	- < 50

Source: Congressional Research Service, The Library of Congress, *Energy Tax Policy*, CRS Issue Brief for Congress, Updated July 20, 2004, p. 15.

Interstate Renewable Energy Markets

Consumers benefit from efficient, competitive renewable energy markets that take advantage of gains from interstate trade. WRA's response covers the following issues: the magnitude of gains from trade, current interstate renewable energy transactions, and expectations of Western Governors regarding regional renewable energy markets.

Magnitude of Gains from Trade

The APS settlement agreement requires APS to obtain at least 250,000 MWH per year from renewable resources with deliveries starting in 2006 and an addition of about 87,000 MWH in the first year after delivery of the 100 MW resource plus twice that in the second year, three times that in the third year, etc., due to the cumulative effects of the requirement that APS obtain at least 10 percent of its growth in capacity needs from renewable resources. Depending on the resource characteristics, renewable energy deliveries may exceed these values.

WRA has indicated that the price of wind energy projects can be less than \$0.03 per kWh at the busbar.⁸ Southwestern Public Service Company in New Mexico is obtaining wind energy at a price less than \$0.025 per kWh from the Caprock Wind Ranch near Tucumcari; the price escalates with the rate of inflation.⁹ There are no large completed wind projects in Arizona, but it is likely that Arizona wind energy costs (including the effects of the Production Tax Credit) would be in the range of \$0.04 to \$0.06 per kWh. This price difference is primarily due to the lower capacity factors which would be achieved in Arizona. Table 2 shows the present value of savings if APS could obtain wind energy more cheaply from out-of-state resources. Savings are presented for cost differentials of \$0.01 per kWh to \$0.04 per kWh between Arizona wind energy and out-of-state wind energy. Even with a slight difference between prices of in-state and out-of-state resources of \$0.01 per kWh, the savings to APS' ratepayers are sizeable: \$73.2 million assuming a 7 percent discount rate. Savings increase as price differentials increase. The table assumes that APS will obtain only the minimum MWH required by the settlement agreement. Larger acquisitions would result in larger savings.

Of course, the price differential, if any, will not be known until APS receives bids, but given the potentially large gains from trade, it is prudent to allow APS to select from as wide a geographic range of resources as possible.

Current Interstate Renewable Energy Transactions

Utilities currently take advantage of gains from trade. Table 3 shows several interstate transactions.

⁸ Direct Testimony of David Berry, filed February 3, 2004, page 6, starting at line 27.

⁹ Thus, the price is less than \$0.025 per kWh in constant 2004 dollars. See Southwestern Public Service Company's 2003 Renewable Energy Plan.

Table 2. Gains from Interstate Trade for APS Renewable Energy Acquisitions

	Price Differential Between Lower Cost and Higher Cost Wind Resources			
	\$0.01/kWh	\$0.02/kWh	\$0.03/kWh	\$0.04/kWh
Present value of savings @ 7% discount rate	\$73.2 million	\$146.4 million	\$219.6 million	\$292.7 million
Present value of savings @ 10% discount rate	\$59.3 million	\$118.7 million	\$178.0 million	\$237.4 million

Assumptions:

1. 15 year time horizon corresponding to an assumed 15 year contract for the initial 100 MW resource. Time horizon is 2006 to 2020.
2. 250,000 MWH per year of wind energy delivered in 2006 and all subsequent years (corresponding to the initial 100 MW acquisition) plus additions of 87,000 MWH each year starting in 2007 corresponding to the energy from the 10 percent increase in capacity needs derived from renewable energy. The energy attributable to obtaining 10 percent of capacity additions from renewable resources increases over time due to the cumulative effect of resource additions.
3. Contracts for resources subsequent to the initial 100 MW resource are evaluated only through the 15 year time horizon and not for any savings occurring beyond that time period. Assumes contracts for these subsequent resources are long enough to cover the 15 year time horizon.
4. Present value calculated to 2006 base year.

Table 3. Examples of Interstate Renewable Energy Transactions

Transaction	Project Location	Buyer Location	Technology	MW	Reference
Cinergy Global Power sale to PSCO	Footo Creek Rim III, Wyoming	Colorado	Wind	24.75	1
PNM sale to SRP	New Mexico Wind Energy Center, New Mexico	Arizona	Wind	50	2
CE Generation sale to SRP	Salton Sea, California	Arizona	Geothermal	25	2
Caithness Energy sale to Southern California Edison	Beowawe, Nevada	California	Geothermal	17	3
	Fallon, Nevada	California	Geothermal	60	3

List of References:

1. American Wind Energy Association
2. Salt River Project, "SRP's Proposed Sustainable Portfolio Six-Year Plan," February 2004.
3. www.caithnessenergy.com/geothermal.html. Accessed December 1, 2004.

Expectations of Western Governors

Western Governors have supported the development of a regional market in renewable energy and tradable renewable energy credits that encompasses the entire western United States.¹⁰ A regional renewable energy market includes interstate transactions. Western Governors are fostering the development of a region-wide system to track renewable energy generation and transactions. In particular, the Western Renewable Energy Generation Information System (WREGIS) is being developed as a joint effort by the Western Governors' Association, the California Energy Commission, and the Western Regional Air Partnership to implement an independent, voluntary, renewable energy generation database and registry for Renewable Energy Certificates within the Western Interconnection.¹¹

The April 2004 WREGIS Progress Report describes WREGIS as a "tracking system [which] resulted from a recognition among policy-makers and regulators that tracking and accounting of renewable energy generation is critical to support robust renewable markets in the West, verification of compliance with various policy mandates, and for consumer protection in voluntary green power markets."¹²

Among the goals of WREGIS are:¹³

- To improve economics for the region's renewable energy resources
- To maximize value of renewable energy generation
- To increase efficiency of renewable energy markets
- To expand the marketplace for Western generated renewable energy

WRA infers from these efforts that Western Governors support an effective regional market for renewable energy that encompasses interstate transactions.

Conclusions Regarding Interstate Renewable Energy Transactions

WRA recommends that, in support of Paragraphs 69 to 72 of the settlement agreement, the Commission allow APS to acquire energy from renewable resources without restrictions on the geographic location of those resources. Allowance of interstate transactions enables APS to maximize the savings resulting from greater reliance on low cost, stably priced renewable energy.

¹⁰ Western Governors' Association, Policy Resolution 03-19.

¹¹ Western Renewable Energy Generation Information System, *Progress Report to Western Governors*, April 15, 2005, page 1.

¹² *Ibid*, p. 1.

¹³ *Ibid*, p. 2.